Original Article

CORRELATION OF RECURRENT APHTHOUS STOMATITIS WITH HAEMATOLOGIC (IRON, FOLIC ACID AND B12) DEFICIENCIES

Vandana Sharma[1], Kanika Bhalla Prabhat [2], Mukul Prabhat[3], Neeraj Grover[4] Upma Tomar[5], Shreya Singh[6]
[1] Associate. Professor, Dept. of Oral and Maxillofacial Pathology & Microbiology, Kalka Dental College , Merrut,
[2,4,6] Dept. of Oral and Maxillofacial Pathology& Microbiology,
Santosh Dental College, Santosh Deemed to be University, Ghaziabad, NCR Delhi.
[3]Dept. of Oral Medicine & Radiology Institute of Dental Studies& Technology, Merrut, U.P
[5]Dept. of Oral and Maxillofacial Pathology & Microbiology, Inderprastha Dental College, Ghaziabad, NCR Delhi.
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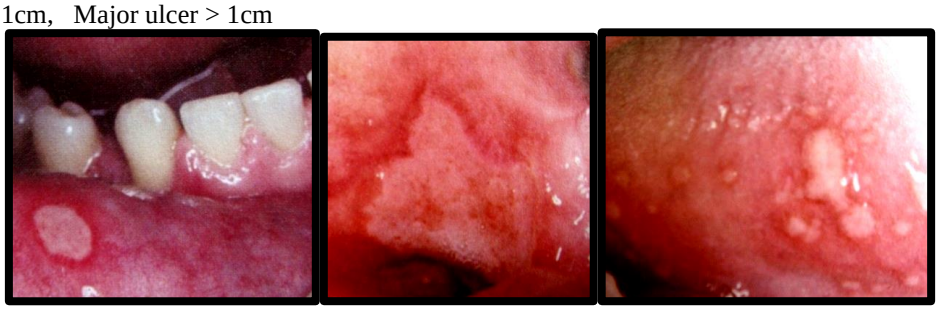
Abstract

Context: Recurrent Aphthous Stomatitis is among the most common oral disorders. The present study attempts to evaluate the causative factors of RAS.
Aim and Objective: The objective of the study is to analyse the role of deficiency of serum iron, serum folic acid and serum vitamin B12 occur in subjects affected by RAS and its comparison with healthy subjects.
Materials and Methods: The present study was a clinical comparative study with two groups – study group (n = 50) and control group (n = 50),. The serum levels of iron, folic acid and vitamin B12 was measured in venous blood on both study and control groups.
Result:'t test showed a significant difference in serum levels of Vitamin B 12, folic acid, and iron between males and females in control and study groups respectively. A significant difference was also observed in serum iron and vitamin B12 between males and females (control groups) only i.e. P < 0. 01. Results established a significantly positive relationship ratio in between the occurrence of RAS and deficiency of vitamin B12 in the serum of affected subjects.
Conclusion: Present study concluded that vitamin B12 and folic acid deficiency may be an important factors in the establishment of etiopathogenesis of RAS. But further research is needed for a wider spectrum with a broader age group and a large population.

KEYWORDS: Recurrent Aphthous stomatitis, iron, folic acid, vitamin B12, serum level

INTRODUCTION

The term "Aphthous" was given by Hippocrates, which means Ulceration[1]. Aphthous stomatitis, or Recurrent Aphthous Stomatitis (RAS) or recurrent Mikulicz's oral aphthae, is a long-standing inflammatory condition of the oral mucous membrane, which is characterized by mostly painful or sometimes painless recurrent ulcers.[2]The term "recurrent oral ulceration"was given by Lehner (1968) to three varieties of recurrent oral ulcers.[3]
Three varieties of recurrent oral ulcer[3] are - minor aphthous ulcer (MiRAS, Recurrent aphthae of Mikulicz), major aphthous ulcer (MjRAS, Periadenitis mucosa necrotic recurrens) and herpetiform ulcers (HU).
Classification of RAS (based on the size of ulcer) by De Meyer et.al. (1977)
Minor ulcer < 1cm, Major ulcer > 1cm



A B C
Figure 1: Minor(A),Major aphthous ulceration (B), Herpetiform aphthous ulcerations (C)

Several studies have suggested the importance of iron, folic acid, and vitamin B12 deficiencies and nutritional intolerance[4], but controversial results have been reported in various literature.[5] Keeping the above idea in mind the present study was planned and compared the results with gender-matched healthy controls.

MATERIALS AND METHOD

The present study was a clinical comparative study to investigate the levels of serum iron, folic acid, and vitamin B12 in subjects with RAS and compare the laboratory findings with healthy controls. The Source of data included the patients reporting to the OPD. Informed consent was taken from every patient. Patients were divided into a healthy study group (n = 50) and a control group (n = 50), based on exclusion and inclusion criteria, and measured the serum levels of iron, folic acid, and vitamin B12 in venous blood. The separated serum was put in a test tube with reagents for serum iron, folic acid, and serum vitamin B12 and then putting it into the autoanalyzer (BiomerieuxMiniVidasAutomated Immunoassay Analyser) The pre-treatment serum iron, serum vitamin B12, and serum folic acid were analyzed in aMiniVidas (Biomerieux) semiautomatic analyzer.The values of 60-160 ng/dl (male) and 35-145 ng/dl (female) were accepted as normal for serum iron, 211-911 pg/dl for serum vitamin B12 and 2.7-17 ng/ml for serum folic acid, respectively for both males and females.

RESULTS

Results was statistically analyzed by cross-tabular analysis with the control group

Table 1: probable value of Z score(double -sample mean difference) & their significance

S.No.	Trace elements	Study Group (MEAN±S.D.)	Control group (MEAN±S.D.)	Probability of "Z"	P- VALUE/ SIGNIFICANCE
1	Serum iron level	116.24±36.1604	127.02±11.5890	.0493	p>.01 (N.S.)
2	Serum vitamin B_{12}	288.32±212.3989	652.92±99.2601	.00000	P<.01 (SIG.)
3	Serum folic acid	4.088±3.5743	11.0816±2.5084	.00000	P<.01 (SIG.)

- **P< 0.01 shows a significant difference between the study & control group at α= .01 level of significance.**

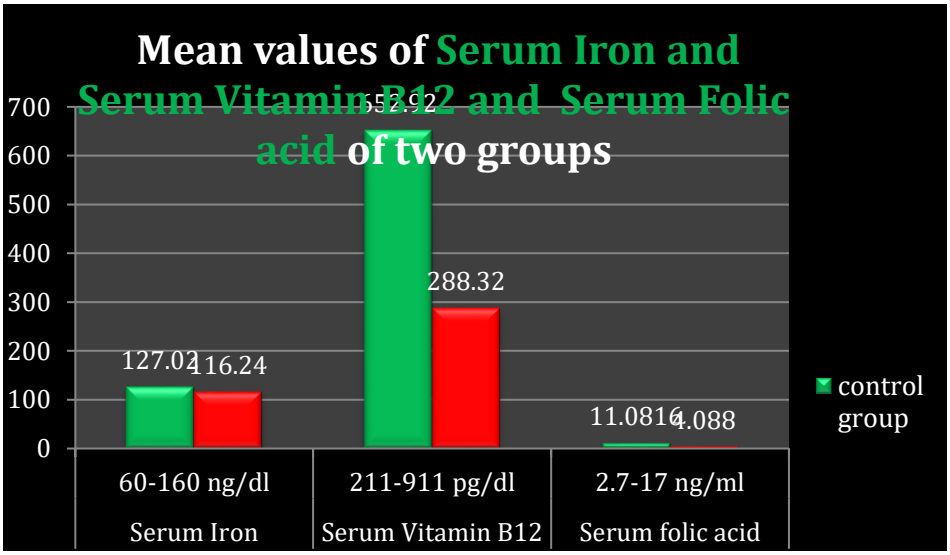


Figure No.2: Bar chart of mean values of serum iron, serum Vitamin B12, and serum Folic acid of two groups

DISCUSSION

Our study established a significantly positive relationship between the occurrence of RAS and deficiency of vitamin B12 in the serum of affected subjects. The results of the present study did not show a direct association of the disease with serum iron.[6] Further unpaired 't-tests also showed a significant difference in serum levels of Vitamin B 12, folic acid, and iron between males and females for control and study groups respectively. (Table no.1)

A significant difference was noted in serum iron and vitamin B12 between males and females (control groups) only i.e. $P < 0.01$. While a significant difference was seen between the control and study group in vitamin B12 and folic acid for both genders respectively [refer Figure no.2].

CONCLUSION

This study concluded that vitamin B12 and folic acid deficiency may be an important factors in the etiopathogenesis of RAS.[7,8] This study attempts to evaluate the relevance between levels of iron, folic acid, and B12 with recurrent aphthous stomatitis, but the exact pathogenesis and cause-and-effect relationship are still not clear.[9] Many times direct immunofluorescence test is needed for detection of exact pathogenesis of RAS.[10] Further studies are needed in a wider spectrum, on a larger group of patients to present conclusive evidence on etiological factors causing RAS.

DECLARATION OF CONFLICTING INTEREST

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